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Can Data Centers ever be Green?

Electricity from Gas- and Diesel-powered Data centers can be green, through a comprehensive approach that includes using renewable energy, improving energy efficiency with virtualization and advanced hardware, implementing efficient cooling systems, optimizing data storage, and designing for longevity and resource recovery. While truly 100% green is a high bar, significant strides are being made to reduce their environmental impact through a combination of technology, design, and operational changes.

Strategies for Green Data Centers

- **Renewable Energy**

INNOVO Net Zero microalgae bio-farms, profitably remove CO_2 simultaneously from both the smoke and air. The resulting by-product enables clean electricity generation using either diesel or gas. This has far-reaching implications for all heavy industries, and data centers in particular, making their operation virtually net zero.

- **Energy Efficiency:**
    - **Hardware:** Adopting energy-efficient servers and other computing equipment lowers overall power consumption.
    - **Virtualization:** Consolidating workloads onto fewer physical servers reduces energy needs and the number of underutilized systems.

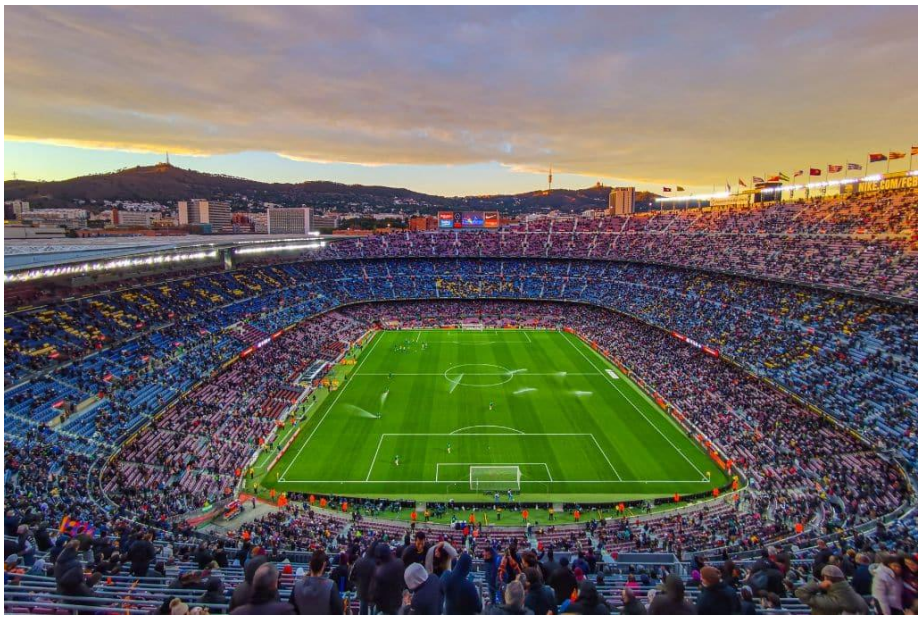
- **Cooling:** Implementing advanced, energy-efficient cooling methods like free cooling, which uses ambient air to cool systems, significantly reduces energy use.

- **Data Optimization:**
    - **Compression and deduplication**: Techniques to reduce data size and eliminate redundant data decrease storage requirements and, consequently, energy consumption.
- **Resource Management:**
    - **Repurposing and Recycling:** Extending the lifespan of physical equipment and recycling old components minimizes waste and resource consumption.
    - **Heat Recovery:** Capturing and reusing the heat generated by computing systems for other purposes is another aspect of a sustainable data center design.

- **Strategic Design & Location:**
    - **Infrastructure Design:** A green data center is designed with energy efficiency and minimal environmental impact in mind from its inception.
    - **Location:** The location of a data center can influence its energy use, with some regions offering more favorable conditions for efficiency and renewable energy adoption.

Top learn more https://innovo-net-zero.com/data-centers

Most World Cup Venues Face “Unplayable” Extreme Heat Conditions



The 2026 World Cup “could be the last World Cup of its kind in [North America]. Without significant adaptation, it is unlikely that future tournaments in North America will follow the same model as 2026 — with traditional summer scheduling, current infrastructure standards, and minimal climate protocols,” the “Pitches in Peril” report (**c**ompiled by Football for the Future, Common Goal and Jupiter Intelligence)**.**

The report found that 14 of the 16 World Cup venues are already exceeding “safe-play thresholds” for extreme heat, unplayable rainfall, and flooding. By mid-century, the report warns that nearly 90% of host stadiums will face unsafe extreme heat conditions and 11 stadiums will experience unplayable heat.

The “safe play” benchmark for extreme heat is 35C (95F), which represents the limit of human adaptability to extreme heat. Once this threshold is reached, the body’s natural cooling system begins to fail, heightening the risk of heatstroke and dehydration, both for players and spectators. According to the report, several of the 2026 World Cup locations are already recording temperatures at or above this threshold.

Topping the list of the most climate-vulnerable stadiums in North America are Miami, Houston, Dallas in the US and Monterrey in Mexico. These are all at risk of having 100-160 days of unplayable heat by 2050, as well as flash flooding, extreme winds, and water scarcity, according to the report.

A similar assessment of football stadiums published last November also identified stadiums in Houston and Monterrey as facing “unacceptable thermal stress” risk. It warned that footballers face a “very high risk of experiencing extreme heat stress” at 10 of the 16 stadiums that will host the next World Cup, with the combination of hot weather and heavy exercise potentially exposing them to feel-like temperatures as high as 49.5C (121.1F).

Disruptions

Climate change is already disrupting football at all levels, the report said. In England, 120,000 grassroots matches are canceled annually due to poor weather, and by 2050, a quarter of professional clubs could face yearly flood risks.

But the disruptions are not limited to local games. In the past year, floods in Spain and a hurricane and wildfires in the US affected elite league matches. Even major tournaments are not immune, with the African Cup of Nations and the World Cup having to reschedule events due to unsafe conditions. Most recently, the 2025 FIFA Club World Cup in the US saw multiple matches delayed by record heat and severe thunderstorms.

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Climate Advocacy

A survey commissioned by the report’s authors found that the sport’s fans are overwhelmingly in support of more climate action and sustainability initiatives. 91% of 3,613 football fans across three host nations – the US, Mexico, and Canada – said they believe the World Cup should be a global role model for sustainability in sport.

86% said clubs and governing bodies should speak out on climate, even if they are still working on reducing their footprint, while 91% said they would feel proud if their club took visible climate action.

Extract from: Earth Org. – Martina Igini

Interesting Reading:

First Climate risk assessment finds 1.5m Australian at risk from sea level rise by 2050.